burst must be retransmitted using a normal burst format. Since auxiliary bursts have more data capacity than the other bursts, auxiliary bursts can not be retransmitted as a normal burst or an abbreviated burst because all of the data may not fit in these bursts. Finally, abbreviated bursts can not be transmitted in a different burst format, since the other formats do not provide the necessary guard time which may be needed in large cells.

The retransmission of subsequent bursts for a mobile station operating in double- or triple-rate are described below. First, the mobile station may append the frames subject to retransmission at the end of the access or during the access using the proper burst format while the channel is still assigned to the mobile station. The communication system may therefore keep the channel assigned to the mobile station in order to allow the mobile station to retransmit the not received frames, during the same access event. Otherwise, if the frame to be retransmitted is sent as a new access attempt and was not originally sent using a normal burst format, the mobile station must first send a normal burst containing dummy information followed by the burst being retransmitted.

It will be understood that Applicants' invention is not limited to the particular embodiments that have been described and illustrated. This application contemplates any and all modifications that fall within the spirit and scope of Applicants' invention as defined by the following claims.

What is claimed is:

1. A method for increasing throughput capacity of a mobile station transmitting a plurality of bursts to a base station in a communication system, comprising the steps of:

transmitting a first burst using a first burst format including at least one first data field having a first number of bits;

transmitting succeeding bursts using a second format including at least one second data field having a second number of bits greater than said first number of bits, said at least one second data field including third and fourth data fields and said second format including a synchronization field.

2. A method according to claim 1, wherein said mobile station is operating in a small cell.

3. The method of claim 1, wherein said at least one first data field comprises two first data fields, said first number of bits is 244 bits, said at least one second data field comprises two second data fields and said second number of bits is 296 bits.

4. A method for increasing throughput capacity of a mobile station transmitting a plurality of consecutive bursts to a base station in a communication system, comprising the steps of:

transmitting a first burst using a first burst format;

transmitting succeeding consecutive bursts except a last burst of said plurality of consecutive bursts using a second burst format; and

transmitting the last burst using a third burst format wherein each of said first, second and third burst formats are different.

5. A method according to claim 4, wherein said mobile station is operating in a large cell.

6. A method according to claim 4, wherein said second format is comprised of first and second data fields and a synchronization field.

7. The method of claim 4, wherein said first burst format includes at least one first data field having a first number of bits and said second burst format includes at least one

second data field having a second number of bits greater than said first number of bits.

8. The method of claim 7, wherein said at least one first data field comprises two first data fields, said first number of bits is 244 bits, said at least one second data field comprises two second data fields and said second number of bits is 296 bits.

9. A method for transmitting data from a mobile station to a base station in a communication system, comprising the steps of:

transmitting data from the mobile station to the base station in bursts, wherein said bursts can be in different formats;

receiving said bursts at said base station;

determining the format for each burst by detecting the presence or absence of various physical layer fields in said received burst wherein said physical layer fields include guard, ramp, preamble, and additional synchronization fields; and

decoding the data contained in each received burst based on the determined format.

10. A method according to claim 9, wherein said different formats include a first burst format and a second burst format.

11. A mobile station comprising:

a processor for determining whether said mobile station is to transmit at greater than full-rate, and, if so, grouping information in a first burst and succeeding bursts; and

a transmitter for transmitting a first burst using a first burst format; and for transmitting succeeding consecutive bursts using a second burst format different than said first burst format.

12. The mobile station of claim 11, wherein said first burst format includes at least one first data field having a first number of bits and said second burst format includes at least one second data field having a second number of bits greater than said first number of bits.

13. The mobile station of claim 12, wherein said at least one first data field comprises two first data fields, said first number of bits is 244 bits, said at least one second data field comprises two second data fields and said second number of bits is 296 bits.

14. A method for transmitting data from a mobile station to a base station in a communication system, comprising the steps of:

transmitting data from the mobile station to the base station in bursts, wherein said bursts can be in several different formats;

receiving said bursts at said base station;

determining the format for each burst based upon information received from a reverse channel scheduling section of said base station; and

decoding the data contained in each received burst based on the determined format.

15. A method according to claim 14, wherein said different formats include a first burst format and a second burst format.

16. The method of claim 15, wherein said first burst format includes at least one first data field having a first number of bits and said second burst format includes at least one second data field having a second number of bits greater than said first number of bits.

17. The method of claim 16, wherein said at least one first data field comprises two first data fields, said first number of bits is 244 bits, said at least one second data field comprises two second data fields and said second number of bits is 296 bits.